



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/580,102

05/19/2006

Heon Moo Kim

Q94656

5114

23373 7590 04/02/2010  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

KASHNIKOW, ERIK

ART UNIT

PAPER NUMBER

1782

NOTIFICATION DATE

DELIVERY MODE

04/02/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com  
PPROCESSING@SUGHRUE.COM  
USPTO@SUGHRUE.COM

<b>Office Action Summary</b>	<b>Application No.</b> 10/580,102	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> ERIK KASHNIKOW	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,13-16,19-22 and 29-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,13-16,19-22 and 29-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 2, 4-6, 8 and 13-16 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 6 and 11-14 of copending Application No. 11/579,619 in view of Bastioli et al (US 5,512,378). The claims in the copending application teach all the limitations of the starch materials in Applicant's instant application. Although claims 1-13 are drawn to composition and not bowl, given that it is disclosed that the composition is "for a biodegradable starch bowl", it would have been obvious for one of ordinary skill in the art to use the composition to form a bowl as presently claimed. The copending application is silent regarding a film or sheet attached to the starch composition. Bastioli et al. teach that it is known in the

Art Unit: 1794

art to attach biodegradable sheets comprising polyvinyl alcohols and a polycaprolactam to biodegradable starch package compositions (column 1 lines 5-9 and column 3 lines 6-15 and 25-27). One would be motivated to use this biodegradable sheet of Bastioli et al. because water barrier protection (column 1 lines 38-41).

This is a provisional obviousness-type double patenting rejection.

Claims 1-16 directed to an invention not patentably distinct from claims 1-14 of commonly assigned application 11/579,619. Specifically, see above paragraphs for details.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned 11/579,619, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 33, 34, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bastioli et al.(US 5,512,378) in view of George et al. (US 5,393,804) Sanbayashi et al., (US 2002/0160910), Sullivan (US 5,382,440), Cassar (US 6,117,229) and Kuroda et al. (US 5,786,406).

5. Bastioli et al. teach a biodegradable article comprised of a starched base material and a biodegradable film thereon (column 1 lines 5-9).

6. In regards to claims 33, 34, 36, and 37 Bastioli et al. teach that the base material comprises unmodified maize (another word for corn) starches (column 4 lines 1-10). Bastioli teaches that the starches may be combined with polymeric materials or plasticizers (column 3 line 42 to column 4 line 21). Bastioli et al. teach that the starch is present in a concentration of 37% by weight (example 1). Bastioli et al. teach that water may be added to the composition in concentrations between 1 and 50% (column 4 lines 17-21). Bastioli et al. also teach a second biodegradable layer attached to the starch layer (column 6 lines 43-46). In regards to the limitation that the bowl is "prepared to have a desired shape by heating and pressurizing" Examiner is treating it as a product

Art Unit: 1794

by process claim. It has been shown that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process (MPEP 2113 and *In re Thorpe*, 777F.2d 695, 698, 227 USPQ 964, 966).

7. While Bastioli et al. teach the biodegradable article they are silent regarding the article being a bowl, however it would be obvious to one of ordinary skill in the art at the time of the invention that a bowl is a type of container or package, and one would be motivated to put the article in bowl form depending on that which the article is designed to hold.

8. In regards to claims 34 and 36 and 37 it is noted that Bastioli et al. teach the use of waxes, polycaprolactone, polylactic acid, polyglycolic acid and polyvinyl alcohol as a biodegradable film (end of column 2 top of column 3).

9. In regards to claim 33, 34, 36 and 37 George et al. teach a biodegradable polymer composition capable of being formed into packaging materials (column 1 lines 10-19). George et al. teaches that the compound comprises starch (column 1 lines 10-20). George et al. teach that a lubricant, specifically magnesium stearate can be added to the starch in 1-10% of the starch composition (column 9 lines 1-17). George et al. also teach fillers such as fibers being added to the composition in amounts of 20-60% which overlaps with applicant's range (column 8 lines 62-68).

Art Unit: 1794

10. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli et al. with that of George et al. because the invention of Bastioli et al. which offers effective liquid gas and vapor barriers (column 1 lines 5-10) would benefit from the uniform melt formation of the article of George et al.

11. As stated above George et al. and Bastioli et al. teach biodegradable containers comprising starch and a biodegradable film, however they are silent regarding the addition of titanium dioxide.

12. In regards to claims 34 and 36 Sanbayashi et al. teach the use of titanium dioxide which comprises some anatase (paragraph 0020) are known in the art at the time of the invention to be used in natural polymers (claim 19) such as starch (paragraph 0061) used in containers (claim 27). Sanbayashi teach that the titanium dioxide and condensed phosphate containing an alkaline earth metal is present in 0.01-80% of the entire composition (paragraph 0035). Sanbayashi further teaches that the condensed phosphate containing an alkaline earth metal is present in amounts of from 0.1-20 mass% (paragraph 50). This leaves the titanium present in amounts of 0.00999-64 mass% which overlaps Applicant's range. In regards to the concentration of the anatase Sanbayashi et al. teach that the titanium may consist all of one type of crystal, including anatase (paragraph 0047), this would mean 100% anatase, which would meet applicant's anatase concentration limitation.

It is the examiner's position that the intended use recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art and further that the prior art structure is capable of performing the intended

Art Unit: 1794

use. Given that Sanbayashi et al. disclose titanium dioxide as presently claimed, it is clear that the titanium dioxide of Sanbayashi et al. would be capable of performing the intended use, i.e. sterilizing and deodorizing, presently claimed as required in the above cited portion of the MPEP.

13. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli and George with that of Sanbayashi et al. because the invention of Sanbayashi et al. offers excellent industrial applicability (paragraph 0013).

14. As stated above Bastioli, George, and Sanbayashi, teach a biodegradable bowl comprised of starch and a film attached thereto, however they are silent regarding a preservative.

15. Sullivan teaches starch compositions (column 6 lines 35-40).

16. In regards to preservatives Sullivan teaches that sodium benzoate and sodium propionate are known preservatives for use with starch, and are used in concentrations of 0.15-0.3 weight %, which overlaps with Applicant's range (column 6 lines 50-60).

17. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli, George and Sanbayashi with that of Sullivan because the invention of Sullivan would offer increased protection against mold and yeast (column 6 lines 50-60).

18. As stated above Bastioli, George, Sullivan and Sanbayashi, teach a biodegradable bowl comprised of starch and a film attached thereto, however they are silent regarding the thickness of the biodegradable layer, as well as the method of forming the article.



Art Unit: 1794

19. Kuroda et al. teach biodegradable molded articles (column 1 lines 5-10) comprising a biodegradable film.

20. In regards to claim 33, 34 and 36 Kuroda teaches it is known in the art for biodegradable films to have a thickness of 5-200 micron which overlaps with applicants range (column 13 lines 1-10). Examiner points out that the term “for water resistance”, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

21. In regards to claims 37 Kuroda et al. teach that vacuum forming is a commonly used method for forming the articles of their invention (column 12 lines 36-40).

22. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli, George, Sanbayashi, and Sullivan with Kuroda et al. because Kuroda et al. offers ease of adjusting the films for a wide variety of uses (column 13 lines 1-3).

23. As stated above Bastioli, George, Kuroda and Sanbayashi, teach a biodegradable bowl comprised of starch and a film attached thereto, however they are silent regarding the doping of the titanium with the Applicants claimed metals.

24. In regards to claim 33, 34, 36 and 37 Sanbayashi et al. teach that the titanium may be doped with metals such as rhodium or ruthenium (paragraph 0052).

Art Unit: 1794

25. Cassar et al. teach it is known to dope titanium that is to have a photochemical effect with metals such as rhodium, ruthenium, molybdenum (Mo) iron (Fe (III)) and niobium (Nb) (column 4 lines 40-45).

26. The Courts recognize that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” Id. at \_\_\_\_, 82 USPQ2d at 1395. (2) “In *Anderson ’s-Black Rock, Inc. v. Pavement Salvage Co.*, (See also MPEP 2143). In this instance Cassar teaches that Mo and Nb are known equivalents of Rh and Ru and that they would yield the same predictable results.

27. It would have been obvious to one of ordinary skill in the art to substitute Fe (III) Mo or Nb in place of Rh or Ru in order to obtain the predictable results of a doped photochemically active titanium dioxide.

28. Claims 4-6, 14-15, 19-22, 30-32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bastioli et al.(US 5,512,378) in view of George et al. (US 5,393,804) Sanbayashi et al., (US 2002/0160910), Sullivan (US 5,382,440), Matsuda et al. (US 6,183,596) and Kuroda et al. (US 5,786,406).

29. Claims 33, 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bastioli et al.(US 5,512,378) in view of George et al. (US 5,393,804) Sanbayashi et al., (US 2002/0160910), Lorcks (US 5,525,281), Matsuda et al. (US 6,183,596), Kuroda et al. (US 5,786,406) and Cassar et al. (US 6,117,229).

Art Unit: 1794

30. Bastioli et al. teach a biodegradable article comprised of a starched base material and a biodegradable film thereon (column 1 lines 5-9).

31. In regards to claims 4, 15 and 20 Bastioli et al. teach that the base material comprises unmodified maize (another word for corn) starches (column 4 lines 1-10). Bastioli teaches that the starches may be combined with polymeric materials or plasticizers (column 3 line 42 to column 4 line 21). Bastioli et al. teach that the starch is present in a concentration of 37% by weight (example 1). Bastioli et al. teach that water may be added to the composition in concentrations between 1 and 50% (column 4 lines 17-21). Bastioli et al. also teach a second biodegradable layer attached to the starch layer (column 6 lines 43-46). In regards to the limitation that the bowl is "prepared to have a desired shape by heating and pressurizing" Examiner is treating it as a product by process claim. It has been shown that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process (MPEP 2113 and *In re Thorpe*, 777F.2d 695, 698, 227 USPQ 964, 966).

32. While Bastioli et al. teach the biodegradable article they are silent regarding the article being a bowl, however it would be obvious to one of ordinary skill in the art at the time of the invention that a bowl is a type of container or package, and one would be

Art Unit: 1794

motivated to put the article in bowl form depending on that which the article is designed to hold.

33. In regards to claim 33 it is noted that Bastioli et al. teach the use of waxes, polycaprolactone, polylactic acid, polyglycolic acid and polyvinyl alcohol as a biodegradable film (end of column 2 top of column 3).

34. In regards to claim 13 and 32 George et al. teach a biodegradable polymer composition capable of being formed into packaging materials (column 1 lines 10-19). George et al. teaches that the compound comprises starch (column 1 lines 10-20). George et al. teach that a lubricant, specifically magnesium stearate can be added to the starch in 1-10% of the starch composition (column 9 lines 1-17). George et al. also teach fillers such as fibers being added to the composition in amounts of 20-60% which overlaps with applicant's range (column 8 lines 62-68).

35. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli et al. with that of George et al. because the invention of Bastioli et al. which offers effective liquid gas and vapor barriers (column 1 lines 5-10) would benefit from the uniform melt formation of the article of George et al.

36. As stated above George et al. and Bastioli et al. teach biodegradable containers comprising starch and a biodegradable film, however they are silent regarding the addition of titanium dioxide.

37. In regards to claims 34 and 36 Sanbayashi et al. teach the use of titanium dioxide which comprises some anatase (paragraph 0020) are known in the art at the time of the invention to be used in natural polymers (claim 19) such as starch

Art Unit: 1794

(paragraph 0061) used in containers (claim 27). Sanbayashi teach that the titanium dioxide and condensed phosphate containing an alkaline earth metal is present in 0.01-80% of the entire composition (paragraph 0035). Sanbayashi further teaches that the condensed phosphate containing an alkaline earth metal is present in amounts of from 0.1-20 mass% (paragraph 50). This leaves the titanium present in amounts of 0.00999-64 mass% which overlaps Applicant's range. In regards to the concentration of the anatase Sanbayashi et al. teach that the titanium may consist all of one type of crystal, including anatase (paragraph 0047), this would mean 100% anatase, which would meet applicant's anatase concentration limitation.

It is the examiner's position that the intended use recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art and further that the prior art structure is capable of performing the intended use. Given that Sanbayashi et al. disclose titanium dioxide as presently claimed, it is clear that the titanium dioxide of Sanbayashi et al. would be capable of performing the intended use, i.e. sterilizing and deodorizing, presently claimed as required in the above cited portion of the MPEP.

38. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli and George with that of Sanbayashi et al. because the invention of Sanbayashi et al. offers excellent industrial applicability (paragraph 0013).

39. As stated above Bastioli, George, and Sanbayashi, teach a biodegradable bowl comprised of starch and a film attached thereto, however they are silent regarding a preservative.

Art Unit: 1794

40. Lorcks et al. teach biodegradable starch compositions (claim 17).

41. In regards to preservatives Lorcks et al. teach that potassium sorbate is known preservatives for use with biodegradable starches. It has been found that absent a showing of criticality with respect to "preservative concentration" (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the "preservative concentration" through routine experimentation to values, including those presently claimed in order to achieve "a lasting biodegradable starch material". It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

42. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli, George and Sanbayashi with that of Lorcks et al. because the invention of Lorcks et al. offers increased preservation (claim 17) as well as a stronger easily biodegradable film (column 1 lines 10-13).

43. As stated above Bastioli, George, Lorcks and Sanbayashi, teach a biodegradable bowl comprised of starch and a film attached thereto, however they are silent regarding the thickness of the biodegradable layer, as well as the method of forming the article.

44. Kuroda et al. teach biodegradable molded articles (column 1 lines 5-10) comprising a biodegradable film.

45. In regards to claim 32, 34 and 36 Kuroda teaches it is known in the art for biodegradable films to have a thickness of 5-200 micron which overlaps with applicants range (column 13 lines 1-10). Examiner points out that the term "for water resistance",

Art Unit: 1794

a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

46. In regards to claims 19 Kuroda et al. teach that vacuum forming is a commonly used method for forming the articles of their invention (column 12 lines 36-40).

47. In regards to claims 30-31 all the limitations in the claims have been discussed above.

48. One of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli, George, Sanbayashi, and Lorcks with Kuroda et al. because Kuroda et al. offers ease of adjusting the films for a wide variety of uses (column 13 lines 1-3).

49. As stated above Bastioli, George, Sanbayashi Sullivan and Kuroda teach a biodegradable bowl comprised of starch and a film attached thereto, however they are silent regarding the length of the pulp fiber material as well as the composition of the pulp fiber material.

50. Matsuda et al. teach compositions comprising pulp fibers and various starches (column 9 lines 53-60).

51. In regards to claim 5 Matsuda et al. teach that the fibers have lengths of no more than 50  $\mu\text{m}$  which is within Applicant's range (column 9 lines 30-32).

52. In regards to the powder limitation of the claims, since the same materials are taught in the same sizes as those presently claimed, then the fibers would therefore

Art Unit: 1794

also be in powder form. It is also pointed out that since all the materials are taught by the references, including the starch, and the bowls are made in the same manner then the anion meq would intrinsically be the same.

53. In regards to claim 6 Matsuda et al. teach that broad leaf fibers are a preferred fiber for their invention (column 5 lines 15-24).

54. It would have been obvious to one of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli George Lorcks, and Sanbayashi et al. with Matsuda et al. because Matsuda et al. offers the ability to dye, pigment or tint a cellulose product with ease (column 3 lines 9-14).

55. As stated above Bastioli, George, Kuroda and Sanbayashi, teach a biodegradable bowl comprised of starch and a film attached thereto, however they are silent regarding the doping of the titanium with the Applicants claimed metals.

56. In regards to claim 33, 35 and 37 Sanbayashi et al. teach that the titanium may be doped with metals such as rhodium or ruthenium (paragraph 0052).

57. Cassar et al. teach it is known to dope titanium that is to have a photochemical effect with metals such as rhodium, ruthenium, molybdenum (Mo) iron (Fe (III)) and niobium (Nb) (column 4 lines 40-45).

58. The Courts recognize that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” Id. at \_\_\_, 82 USPQ2d at 1395. (2) “In *Anderson ’s-Black Rock, Inc. v. Pavement Salvage Co.*, (See



also MPEP 2143). In this instance Cassar teaches that Mo and Nb are known equivalents of Rh and Ru and that they would yield the same predictable results.

59. It would have been obvious to one of ordinary skill in the art to substitute Fe (III) Mo or Nb in place of Rh or Ru in order to obtain the predictable results of a doped photochemically active titanium dioxide.

60. Claims 1, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bastioli et al.(US 5,512,378) in view of George et al. (US 5,393,804) Sanbayashi et al., (US 2002/0160910), Cassar et al. (US 6,117,229), Matsuda et al. (US 6,183,596), Kuroda et al. (US 5,786,406) and Andersen et al. (US 6,030,673).

61. While Bastioli et al., George, Sanbayashi et al. teach the biodegradable article they are silent regarding the use Applicant's specific compounds as use for the biodegradable film.

62. It is noted that Bastioli et al. teach the use of waxes, polycaprolactone, polylactic acid, polyglycolic acid and polyvinyl alcohol as a biodegradable film (end of column 2 top of column 3).

63. Andersen et al. teach molded products comprising a starch layer and a biodegradable film layer (claim 1)

64. In regards to claim 1, 16, and 32-37 Andersen et al. teach cellulose acetate is a known substitute for polyvinyl alcohols, polylactic acid, and waxes (column 46 lines 1-40). The Courts recognize that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the

Art Unit: 1794

field, the combination must do more than yield a predictable result." *Id.* at \_\_\_\_, 82

USPQ2d at 1395. (2) "In *Anderson 's-Black Rock, Inc. v. Pavement Salvage Co.*, (See also MPEP 2143).

65. It would have been obvious to one of ordinary skill in the art to substitute cellulose acetate in place of polylactic acid, polyvinyl alcohol, or waxes in order to obtain the predictable results of a biodegradable coating material.

66. Claims 13 and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Bastioli et al.(US 5,512,378) in view of George et al. (US 5,393,804) Sanbayashi et al., (US 2002/0160910), Matsuda et al. (US 6,183,596) and Sullivan (US 5,382,440) Kuroda et al. (US 5,786,406) and in further view of Shogren et al. (US 6,146,573).

67. As stated above Bastioli, George, Sanbayashi, Matsuda, and Sullivan teach a biodegradable bowl comprised of starch and a film attached thereto, however they are silent regarding the combination of monostearyl citrate and magnesium stearate. Shogren et al. teach the inclusion of monostearyl citrate and magnesium stearate in starch compositions to act as releasing agents. While they are silent regarding specific concentrations of the two, it has been found that absent a showing of criticality with respect to "ratios of the releasing agents" (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the "concentrations of the releasing agents" through routine experimentation to values, including those presently claimed in order to achieve "a concentration that works as an effective releasing agent for starch substances". It has been held that discovering an

Art Unit: 1794

optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

68. It would have been obvious to one of ordinary skill in the art at the time of the invention would be motivated to modify the invention of Bastioli, George, Sanbayashi, Matsuda, and Sullivan with Shogren et al. because Shogren et al. offers protection against problems of adhesion between the starch compositions and the molds (column 26 lines 17-20).

### ***Response to Arguments***

69. Examiner will acknowledge that the double patenting rejection will be held in abeyance until patentable subject matter is determined.

70. In response to Applicant's arguments regarding the Bastioli and Kuroda references it is noted that these references are not being used to teach the limitations in claims 1 and 16 which require the polybutylene or polyethylene succinate, ester starch or cellulose acetate film, rather they teach the polyglycolic acid which is included in claims 33 and 34. Further with regards to the thickness the courts have ruled that "applicant must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that the reference did not teach others." In re Courtright, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967). It is noted that Bastioli does not teach away from the required thicknesses and the Kuroda et al. is being used to teach the thickness for the motivation stated above.

Art Unit: 1794

71. In response to Applicant's arguments regarding the Sanbayashi et al. concentrations, Examiner acknowledges that there is in fact a much larger concentration of titanium dioxide than condensed phosphate and alkaline earth metals is noted that the paragraphs pointed to by the examiner do in fact teach concentrations within Applicant's range. It is noted that the 0.01-80% photo-functional powder concentration in the article allows there to be a larger amount of titanium dioxide in said film, and still contain the desired concentration of titanium dioxide based on the total amount of the composition. It is noted that a slight error in the calculations has been fixed, the low range has been changed from 0.00999% to 0.0098%. In regards to Applicant's assertion that the anatase in the Sanbayashi et al. document does not have photochemical effect, examiner notes firstly that the courts have ruled that "applicant must look to the whole reference for what it teaches. Applicant cannot merely rely on the examples and argue that the reference did not teach others." In re Courtright, 377 F.2d 647, 153 USPQ 735,739 (CCPA 1967). Further the reason comparative example 2 did not have the desired photochemical effect was because the particle size of the anatase titanium dioxide was outside the range claimed by Sanbayashi et al. and not because anatase was used (table 1 and claim 1).

72. In regards to the Cassar et al. reference it is noted that Cassar et al. do in fact teach doping anatase type titanium dioxide with Fe (III) as disclosed above.

73. In regards to Applicant's declaration, as set forth in MPEP 716.02(d), whether unexpected results are the results of unexpectedly improved results or a property not taught by the prior art, "objective evidence of nonobviousness must be commensurate

Art Unit: 1794

in scope with the claims which the evidence is offered to support". In other words, the showing of unexpected results must be reviewed to see if the results occurred over the entire claimed range, *In re Clemens*, 622F.2d 1029, 1036, 206 USPQ 289, 296 (CCPA 1980). As Applicants state that the unexpected results are due to **the combination** of the doped titanium dioxide and the preservative, "[f]rom the foregoing both the deodorizing effect and the prevention of stench can be achieved only when the composition comprises the combination of **photocatalyst and preservative in a claimed amount and ratio, as the combination of photocatalyst and preservative would affect the physical properties of the starch bowl by a reciprocal operation** between the photocatalyst and preservative", Applicants have not provided data to show that the unexpected results do in fact occur over the entire claimed ranges or ratios of 0.5-20% by weight of the total composition amount for the photocatalyst and greater than 0.1 to less than 0.5% by weight of the total composition of the preservative. It is noted that in both instances when Applicants varied the range of one of the properties, the other range was kept at a concentration at the lower end of the scale. Therefore from the data presented it is not shown that at the higher ends of both concentration ranges the unexpected properties would be present.

74. It is further noted that claims 33, 34, 36 and 37 are not covered by the declaration as the declaration only shows that the properties work for potassium sorbate and not sodium benzoate.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIK KASHNIKOW whose telephone number is (571)270-3475. The examiner can normally be reached on Monday-Friday 7:30-5:00PM EST (Second Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erik Kashnikow  
Examiner  
Art Unit 1794

/Rena L. Dye/  
Supervisory Patent Examiner, Art Unit 1794

Application/Control Number: 10/580,102  
Art Unit: 1794

Page 22